

Amendments to the Claims:

1. (currently amended): A method for controlling placement of a first part on a second part comprising,

placing a printed image containing a digital watermark on at least one of said parts,

capturing a digital image of said printed image,

reading a grid signal contained in said digital watermark, and

determining the angular rotation of said at least one of said parts from said watermark grid signal.

2. (currently amended): The method of claim 1 including reading other payload data from said digital watermark.

3. (currently amended): The method of claim 1 wherein said grid signal is used to determine a location of at least one of said parts.

4. (original): The method recited in claim 1 wherein said first part is an electronic component.

5. (original): The method recited in claim 1 wherein said second part is a printed circuit board.

6. (currently amended): A system for controlling a pick and placement machine which places a first part on a second part and wherein at least one of said parts includes a printed image containing a digital watermark, said system comprising:
means for reading data from said digital watermark from said part, and
means for determining the orientation of said at least one of said parts from the data read from said digital watermark.

7. (previously presented): The system of claim 6 including means for reading payload data from said watermark.

8. (currently amended): The system of claim 6 wherein the orientation said grid signal is used to determine a location of said at least one of said parts.

9. (currently amended): The system of claim 6 wherein the orientation said grid signal is used to determine a distance of said at least one of said parts from said means for reading.

10. (original): The system of claim 6 wherein said first part is an electronic component.

11. (original): The system of claim 6 wherein said second part is a printed circuit board.

12. (currently amended): A robot for handling items, said robot including,
a camera for acquiring an electronic image of a printed image containing a digital
watermark,
a computer including a program for reading a digital watermark in an electronic
image acquired by said camera,
a controller for controlling said robot in response to data acquired from said
digital watermark.

13. (original): The robot recited in claim 12 including means for reading a grid
signal from said digital watermark.

14. (original): The robot recited in claim 13 wherein said printed image is on an
item to be handled by said robot.

15. (currently amended): The robot recited in claim 14 including means for
determining a distance from said camera to the printed image said item from said grid
signal.

16. (currently amended): The robot recited in claim 14 including means for
determining a orientation of the printed image said item from said grid signal.

17. (currently amended): A method for controlling placement of a first part on a second part, wherein the first part includes steganographic encoding ~~a digital watermark~~ redundantly provided thereon, the steganographic encoding ~~digital watermark~~ including an orientation component, said method comprising:

receiving image data corresponding to at least a portion of the first part, the portion including at least one redundant instance of the steganographic encoding; ~~digital watermark~~;

reading the orientation component of the steganographic encoding; ~~digital watermark~~;

determining an orientation of the first part through reference to at least the orientation component of the steganographic encoding; ~~digital watermark~~;

controlling placement of the first part on the second part through reference to at least the determined orientation of the first part.

18. (previously presented): The method of claim 17, wherein the determined orientation of the first part comprises an angular rotation of the first part.

19. (previously presented): The method of claim 17, wherein the determined orientation of the first part comprises an relative distance of the first part.

20. (currently amended): The method of claim 17, wherein the steganographic encoding ~~digital watermark~~ further comprises an identifier to identify the first part.

21. (currently amended): A robot for handling items, said robot comprising:
an image sensor for sensing image data of an item including a machine-readable code ~~digital watermark~~ provided on a surface thereof, wherein the machine-readable code ~~digital watermark~~ comprises an orientation component;
electronic processing circuitry; and
memory including instructions stored therein for execution by the electronic processing circuitry, the instructions including instructions to:
analyze image data captured by the image sensor,
determine from analyzed image data an orientation of the item relative to the orientation component, and
provide position information based on a determined orientation of the item.

22. (currently amended): The robot of claim 21, wherein the item includes redundant instances of the machine-readable code ~~digital watermark~~ provided on the surface.

23. (previously presented): The robot of claim 21, wherein the position information comprises at least one of an angular rotation and relative distance.

24. (new): The method of claim 21 wherein the machine-readable code comprises steganographic encoding.

25. (new): The method of claim 21 wherein the machine-readable code comprises digital watermarking.

26. (new): The method of claim 17 wherein the steganographic encoding comprises digital watermarking.

27. (new): The method recited in claim 17 wherein the first part comprises an electronic component.

28. (new): The method of claim 21 wherein the robot handles items in a pick-and-place system, and wherein at least one of the items comprises an electronic component.